PATENT ABSTRACTS OF JAPAN

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(54) RADIO VIDEO SIGNAL PROCESSOR

(57)Abstract:

PURPOSE: To separate an image pickup part and a signal recording part and to miniaturize the image pickup part by using a spread spectrum communication system as the communication means of video signals between the image pickup part and the signal recording part. CONSTITUTION: The video signals inputted from an image pickup device are converted to digital signals (14MHz) and then directly spread by being mixed with the output of an PN signal generator 1. A center frequency is up-converted to 3.6GHz and signals are amplified by an amplifier further and outputted from an antenna. When spectrums are spread and transmission is performed in such a manner, since the signals are at a small level in terms of execution, other equipments are not interfered. In the signal recording part, the signals inputted from the antenna are amplified, passed through a SAW matched filter and thus, converted to the impulsive correlation of 14MHz. In a signal recording element, the digital signals are directly recorded or recorded after they are tentatively returned to analog signals.
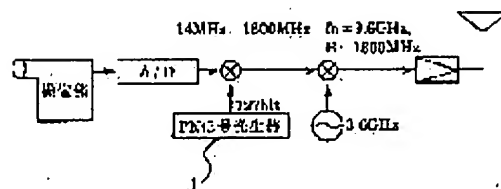
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* NOTICES *

CLAIMS

[Claim(s)]
[Claim 1] The wireless video-signal processor characterized by using spread spectrum communication as means of communications of a video signal in a means to acquire image information, and the system which has output equipment, such as record of a video signal, or a picture monitor.
[Claim 2] The wireless video-signal processor according to claim 1 characterized by using spread spectrum communication as means of communications of a video signal in a means to acquire image information, a means to change a video signal into a digital signal, and the system that has output equipment, such as record of a video signal, or a picture monitor.
[Claim 3] The wireless video-signal processor according to claim 1 characterized by using image pick-up equipment as a means to acquire image information.
[Claim 4] The wireless video-signal processor according to claim 1 characterized by using surface acoustic wave equipment as the modulation or recovery means of spread spectrum communication as means of communications of a video signal.
[Claim 5] The wireless video-signal processor according to claim 1 characterized by being mixed on a suitable frequency after the spectrum diffusion modulation as means of communications of a video signal, and communicating by carrying out the rise convert of the center frequency of a signal.
[Claim 6] The wireless video-signal processor according to claim 1 characterized by to have the means which divides a video signal into a suitable group on a time-axis, divides them into some networks further, carries out time-axis elongation, changes center frequency, a PN code, or both, respectively, and carries out a spectrum diffusion modulation, the means which divide center frequency, a PN code, or both into the network changed, respectively, and carry out a spectrum diffusion recovery, and a means carry out time base compaction of each recovery signal, and compound it.

[Translation done.]

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DETAILED DESCRIPTION

[Detailed Description of the Invention]
[0001]
[Industrial Application] This invention relates to the wireless video-signal processor which used the spread-spectrum communication mode.
[0002]
[Description of the Prior Art] About the conventional video-signal processor, transmission of a video signal was performed using the cable, for example as shown in JP,53-113419,A. The image pick-up section and the signal Records Department are stationed in the same equipment, or it is necessary to carry and act as the signal Records Department together with the image pick-up section, for this reason, the whole equipment connected with the cable becomes large, and there is a limitation in a miniaturization.
[0003]
[Problem(s) to be Solved by the Invention] The purpose of this invention solves an above-mentioned technical problem, separates the image pick-up section and the signal Records Department, and is to exchange between each equipment on radio, and offer the new structure of the suitable picture signal processor for a miniaturization with little active jamming to other devices.
[0004]
[Means for Solving the Problem] The above-mentioned technical problem can solve an exchange of the signal between the image pick-up section and the signal Records Department by using spread spectrum communication.
[0005]
[Function] The image pick-up section and the signal Records Department can be separated without doing active jamming to other devices, since signal level is stopped enough and-izing of it can be carried out [wireless] by the above-mentioned technique.
[0006]
[Example] Hereafter, the example of this invention is explained using drawing 5 and Table 1 from drawing 1 .
[0007] Drawing 1 is the system block of the image pick-up section of the 1st example of this invention. It is directly spread by changing into a digital signal (14MHz) the video signal inputted from an image sensor, next mixing with the output of PN signal (false noise code signal) generator 1. The PN code used 127-bit m sequence sign. The rise convert of the center frequency is carried out at 3.6GHz, and it is further amplified by amplifier, and outputs from an antenna. As mentioned above, if a spectrum is diffused and it transmits, since it is the signal of level small in activation, active jamming to other devices will not be done.
[0008] Drawing 2 is the system block of the signal Records Department of the 1st example of this invention. By being amplified by the amplifier and passing the SAW (surface acoustic wave) matched filter 2, the signal inputted from an antenna is changed into the correlation signal of the shape of a 14MHz impulse, and is changed into a digital signal by the pulse distinction circuit. With a signal record

component, once it returns [directly or] a digital signal to an analog signal, it is recorded.
[0009] As mentioned above, according to this example, since the image pick-up section and the signal Records Department are separable, the miniaturization of the image pick-up section can be attained.
[0010] It is difficult to create the SAW matched filter for a recovery in the 1st example, since the center frequency of a sending signal is high. So, in the 2nd example, center frequency was lowered by dividing the Motonobu number into ten. <u>Drawing 3</u> is the system block of the image pick-up section of the 2nd example of this invention. The video signal inputted from an image sensor was changed into the digital signal (14MHz), the signal was divided into ten on time sequence, and the signal band was set to 1.4MHz for each network in the time-axis expanding circuit. Next, by mixing with the output of a PN signal (false noise code signal) generator 1 which is different for each network, respectively, it is spread directly, and a rise convert is mixed and carried out by the signal of a frequency (720MHz - 820MHz) different further, respectively. Furthermore, each signal is added, is amplified by amplifier and outputted from an antenna. As mentioned above, like the 1st example, if a spectrum is diffused and it transmits, since it is the signal of level small in activation, active jamming to other devices will not be done.
[0011] <u>Drawing 4</u> is the system block of the signal Records Department of the 2nd example of this invention. By being amplified by amplifier and passing the SAW (surface acoustic wave) matched filter 2 corresponding to ten kinds of PN codes, and center frequency, the signal inputted from an antenna is changed into an impulse-like correlation signal, and is changed into a digital signal by the pulse judging circuit. Furthermore, after time amount compression is carried out by the time amount compression circuit, each signal is added by the merge circuit, and once it returns [directly or] a digital signal to an analog signal, it is recorded with a signal record component.
[0012] As mentioned above, since according to this example signal center frequency can be lowered and a SAW matched filter can be created easily, it is advantageous to low-pricing.
[0013]
[Table 1]

表　1

項目	レベル	備　　考
送信出力	−80dBm	電波法規制(−70dBm)以下
伝播損失	−2dB	
初段増幅	20dB	
10分配	−10dB	
マッチドフィルタ損失	−10dB	
処理利得	21dB	(180MHz / 1.4MHz)
総合信号	−61dBm	デジタル処理前
入力雑音	−91dBm	(KBT),B＝180MHz
初段NF	4dB	
初段増幅	20dB	
10分配	−10dB	
マッチドフィルタ損失	−10dB	
総合雑音	−87dBm	デジタル処理前
総合S/N	26dB	デジタル処理前
必要S/N	10dB	デジタル処理時
余裕度	16dB	

[0014] Table 1 is the signal of the 2nd example, and noise level. About 26dB (before digital processing) S/N reservation is possible in this system. Therefore, if need S/N at the time of digital processing is set to 10dB, 16dB whenever [system allowances] is obtained and can build a good system.

[0015] As mentioned above, although the SAW (surface acoustic wave) matched filter was used for the signal Records Department (signal recovery side) here, this device can be used also for the image pick-up section (signal modulation side) by using an impulse generator.

[0016] Drawing 5 shows typically the configuration of the SAW matched filter used in the 2nd example of the above. In order to suppress the property change by the temperature change, ten blind-like electrodes are arranged on the same substrate (ST-Quartz). furthermore, the electrode of an I/O blind-like electrode -- in order to suppress the impedance difference by the difference in a logarithm -- an input side -- a delay circuit and a blind-like electrode -- combination -- piezo-electric thin films (LiNbO3, ZnO, etc.) are formed further. Moreover, opening of one sequence set 290 micrometers and an input impedance to 625 ohms, and set the output impedance to 50 ohms, and we decided to press down a mismatch loss as much as possible.

[0017]

[Effect of the Invention] As mentioned above, since the image pick-up section and the signal Records Department can be separated without according to this invention doing active jamming to other devices since signal level is stopped enough and-izing of it can be carried out [wireless], the miniaturization of the image pick-up section can be attained.

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DESCRIPTION OF DRAWINGS

[Brief Description of the Drawings]
[Drawing 1] It is the system block Fig. of the image pick-up section of the 1st example of this invention.

[Drawing 2] It is the system block Fig. of the signal Records Department of the 1st example of this invention.
[Drawing 3] It is the system block Fig. of the image pick-up section of the 2nd example of this invention.
[Drawing 4] It is the system block Fig. of the signal Records Department of the 2nd example of this invention.
[Drawing 5] It is the mimetic diagram of the surface acoustic wave matched filter used for the 2nd example of this invention.
[Description of Notations]
1 -- PN code generator,
2 -- SAW (surface acoustic wave) matched filter.
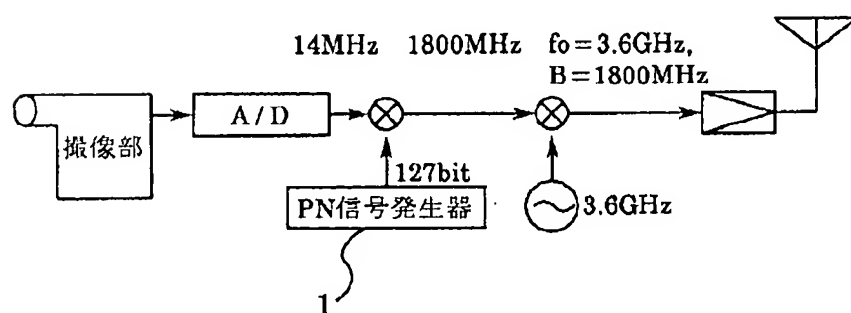

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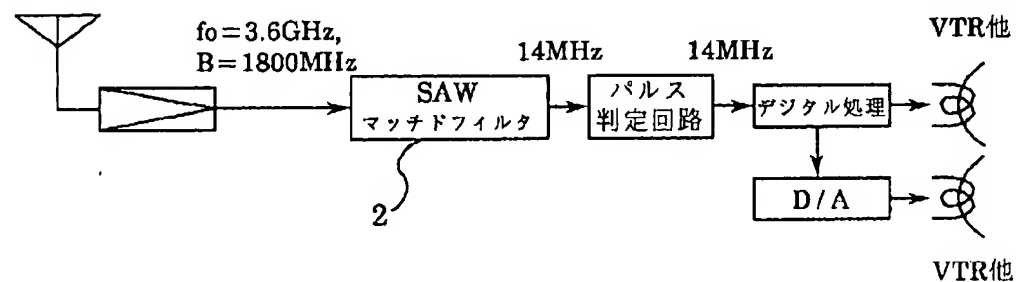3.In the drawings, any words are not translated.

DRAWINGS
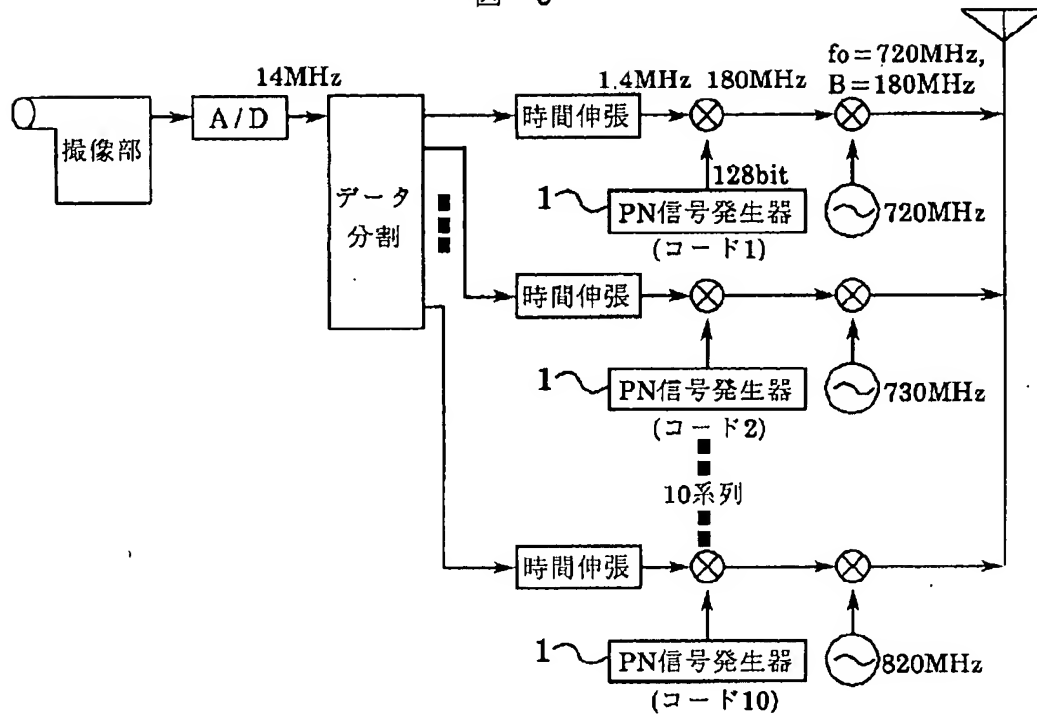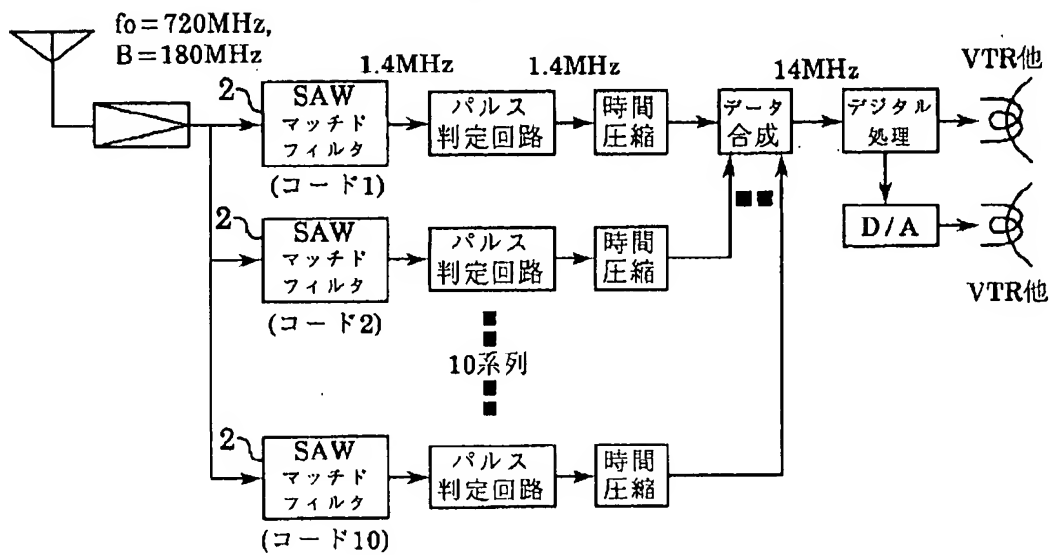

[Drawing 1]

図　1

[Drawing 2]

図　2
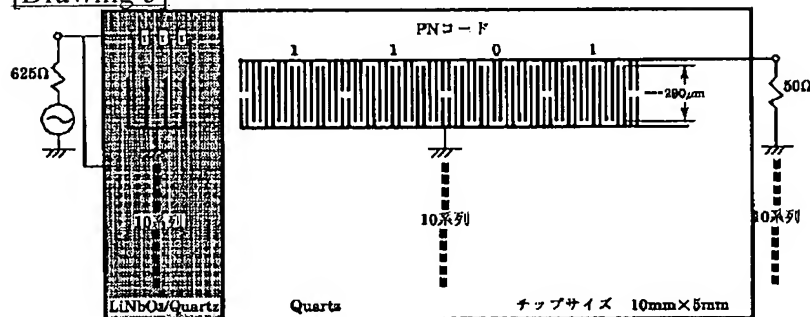

[Drawing 3]

図 3

[Drawing 4]

図 4

[Drawing 5]

[Translation done.]